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(54) Proofing textiles

(57) A dry chemical proofing emulsion
that includes a cross linking
polyacrylic emulsion to give a proofed
fabric with improved resistance to
crocking.

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SPECIFICATION

Dry chemical proofed fabrics of high crocking resistance

In the cloth finishing trade the term Dry Chemical Proofing is used to denote a proofing made essentially from paraffin wax emulsion containing sodium soap as the emulsifying agent, thickening agent such as lactic casein, filler such as china clay, rot proofing agent, colour pigment and a soluble metallic salt, aluminium formate for example.

It is well known that the Dry Chemical Proofing of fabrics incorporating pigments as the colouring media has the defect of relatively poor resistance to crocking (i.e. rubbing off of the pigment). While in some cases this may be of small significance there are many others where this low resistance to crocking is a most undesirable feature.

The present invention relates to a modified finish that has high crocking resistance without the loss of any of the properties such as waterproofness, resistance to mildew and biological decay and "breathability", that are characteristic features of the ordinary dry chemical proofed fabrics.

This modified finish is obtained by the incorporation into the dry chemical formulations of a special polyacrylate emulsion the composition of which is such that the dried polymer is cross-linked and hence does not fuse at elevated temperatures. Such an acrylate emulsion is Vinacryl 4360 manufactured by Vinyl Products Ltd. of Carshalton, Surrey.

It has been found that this modified finish is more retentive than ordinary dry chemical proofings on most types of fabrics whether they be manufactured from natural, regenerated or synthetic fibres or blends thereof.

The woven fabrics treated with the modified finishes are of a wide range of composition including those comprised of; warp and weft of one sort of natural fibre including cotton, linen, jute, wool and silk; warp and weft of one sort of man-made fibre including regenerated cellulose, cellulose acetates, nylon, polyester, polyacrylonitrile and polyolefin; warp and weft of different sorts of natural fibre; warp and weft of different sorts of man-made fibre; warp and weft one of which is of natural fibre and the other of man-made fibre; warp and weft of blends of two or more sorts of natural and man-made fibre; warp and weft one of which is of one sort of fibre and the other a blend. The blends are of doubled single ply yarns and of staple fibres.

In addition the modified finishes are applied to knitted fabrics made from the above mentioned yarns and non woven fabrics made from the above mentioned fibres and blends of fibres.

EXAMPLE 1.

32 kg Soap Flakes.
12 kg Lactic Casein.
20 kg Penta chlor phenyl laurate.
65 kg Paraffin Wax.

75 kg China Clay.
120 kg Vinacryl 4360 (55—60% solids).
Pigments as required.
Bulked to 450 litres with water.

Such an emulsion requires the "two bath" process for treating the fabric in order to convert the soluble sodium soap into an insoluble metallic soap of high water repellency. Thus the fabric after padding through the above dry chemical emulsion is passed through a bath of aluminium formate solution to convert the soap by double decomposition into the insoluble aluminium soap.

EXAMPLE 2.

260 kg Vinacryl 4360 (55—60% solids).
60 kg China Clay.
1.6 kg Courlose 850.
20 kg Mystox LSL (25% P.C.P.L. emulsion).
30 kg MK9 (approx. 30% emulsion of wax and other water repellents).
Pigments as required in 20 kg water.
Courlose is the brand name of Sodium Carboxy Methyl.
Cellulose manufactured by British Celanese of Derby.

Mystox is the brand name for various Penta chlorphenyl laurate emulsions manufactured by Catomance Ltd. of Welwyn Garden City, Herts.
MK9 is the code name for an established dry chemical emulsion made by Catomance Ltd.
As the emulsion contains no free soap it is not essential for the "two bath" system to be used.
However it has been found beneficial to pass the impregnated fabric after padding in the above emulsion through the aluminium formate solution.

EXAMPLE 3.

As in Example 2 but in place of the MK9 using 40 kg Ramasit KGT conc.
Ramasit is the brand name for various paraffin wax dry chemical emulsions manufactured by Badische Anilin and Soda Fabrik A. G. of Ludwigschafen a Rhein.

As with Example 2 the waterproofing is enhanced by subsequent passage through the aluminium formate solution.

In the examples described the cloth after passage through the aluminium formate solution is squeezed by suitable press rolls and then dried on conventional textile drying equipment operating in the range 80°—120°C: the "add on" will vary with the weight and type of fabric processed but will generally be in the range 15—40% of the loomstate weight.

CLAIMS

1. A method of making dry chemical proofed fabric of improved resistance to crocking in which the fabric is treated with a dry chemical proofing emulsion that is modified by the addition of an emulsion of a cross linking acrylate polymer.
2. A method according to Claim 1 in which the modified emulsion comprises soap flakes, lactic casein, penta chlor phenyl laurate, paraffin wax, china clay, pigments, cross linking acrylate

polymer and water.

3. A method according to Claim 2 in which the modified emulsion comprises in parts by weight:

- 5 32 Soap Flakes.
- 12 Lactic Casein.
- 20 Penta chlor phenyl laurate.
- 65 Paraffin Wax.
- 75 China Clay.
- 10 120 Cross linking acrylate polymer emulsion (55—60% solids). Pigments as required. Bulk to 450 by water.
- 4. A method according to Claims 1, 2 and 3 in which the fabric after padding with the modified emulsion is treated with aluminium formate and dried.
- 15 5. A method according to Claims 1 and 4 in which the modified emulsion comprises in parts by weight:
 - 20 260 parts Cross linking acrylate polymer (55—60% solids).
 - 60 China Clay.

1.6 Sodium carboxy methyl cellulose.

20 Penta chlor phenyl laurate emulsion (25% solids).

- 25 30 Dry chemical emulsion containing Paraffin Wax (30% solids). Pigments as required in 20 parts water.

- 6. A method according to any of the Claims 1—5 in which the fabric is made from yarns comprising natural fibres including cotton, linen, jute, wool and silk and man-made fibres including regenerated cellulose, cellulose acetates, nylon, polyester, polyolefins and polyacrylonitrile such yarns comprising a single type of fibre and blends of two or more types of fibre.

- 35 7. A fabric in accordance with Claim 6 that is a union fabric in which the warp and weft are of different single fibre yarns so that the warp is of flax and the weft is of polypropylene.

- 40 8. A proofed fabric made in accordance with any of the preceding claims.